

# Computer Audio Engineering

4810 Marquette Ave., N.E. · Albuquerque, New Mexico 87108  
505-268-0496 · fax: 866-301-0925 · <http://www.CAEaudio.com>

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Mark Barrett  
111. N. Peter  
Suite 100  
Norman, OK 73069

## Report

*RE: Taryn Christian vs. Richard Bissen, et al. Civil No. 04-00743-DAE-LEK audio evidence.*

### Assignment:

Computer Audio Engineering (CAE) was engaged to investigate, analyze and enhance two audio recordings, and prepare a transcript of one of the recordings. The recordings were provided by the Maui Police Department and are believed to be the originals. Hereafter, these two tapes will be referred to as the “original” tapes, and their contents will be referred to as the “original” recordings.

### Physical Description of Tapes Provided:

1. Kimmey-Christian Recording
  - a. Maxell UR 60 tape cassette.
  - b. Lot number F3047401.
  - c. Label on side B.
    1. Murder-II 95-39250.
    2. Phone call Lisa Kimmey 08/17/95.
    3. 1235 hrs.
    4. A. Funes.
  5. Kimmey spoke to Taryn Christian, Call was made by Christian to Lisa.
  - d. Tabs removed.
  - e. Jewel case.
    1. Red “Master” tag.
    2. Murder-II 95-39250.
    3. Christian called Lisa 08/17/95.
    4. A. Funes.

Initialed by me with red “JM” for future identification.

2. 911 Recording
  - a. Maxell UR 60 tape cassette.
  - b. Lot number G1447401.

- c. Tabs removed.
- d. No other identification on cassette.
- e. Jewel case.
  - 1. Yellow Post-It note.
    - a. 911 – calls to dispatch, Maui Police Dept. on July 14, 1995 Murder-II.
  - 2. Jewel case insert
    - a. \$95-39250 As requested. 0300-0500.
    - b. \*NOTE\* Pos. 13 (LAH 911) on Dictaphone is labeled as button #18. No – button 18 is KB354 – Did the best I could. VJ (or VS). Over 10 hrs for this.

Initialed by me with red "JM" for future identification.

#### **Initial Procedure:**

Both original recordings were transferred to the CAE digital system. First, each was transferred at unity (no volume increase or equalization added) with a bit depth of 16 bits, and a sample rate of 44.1 kilohertz (hereafter, bit depth and sampling rate will be denoted as "X bit/Y KHz"). This was done so that a comparison could be made to work done on copies of these recordings in November and December, 2000. Second, each original recording was again transferred to the CAE digital system using a higher resolution setting of 24 bit/48 KHz. A significant volume increase was applied during transfer, but no equalization was applied. Both recordings were slightly shorter than the copies used in 2000. This indicates a slight difference in device speed calibration of between one and two percent. This variation is not uncommon when transferring information from one physical device to another, and is not of concern. It does not change the dialogue content.

#### **Details:**

##### ***Kimmey-Christian Recording:***

###### **16 bit/44.1KHz transfer:**

The original recording contained significantly less extraneous noise than the recording analyzed in 2000. This difference, of at least 3 decibels, represents a reduction of approximately half the extraneous noise. The amplitude (volume) of the recorded dialogue is same. However, because the original recording contains less noise, the signal (dialogue) can be heard more clearly. The fact that there is so much more noise on the 2000 tape indicates that it is a second or third (or even higher) generation copy of the original. Successive generations of analog recordings contain successively more noise and less signal detail.

###### **24 bit/48KHz transfer:**

This higher resolution transfer resulted in significantly increased dialogue clarity, but no significant new information was found. Nevertheless, it provided clarification of the findings in 2000. There are two statements of denial – "I'm not the one who did it," and "I wasn't the one who stabbed him." There was one additional word found in the full phrase of the

second statement of denial, the word “Lisa”. That full phrase was previously thought to be “I wasn’t the one who stabbed him and I know that for a fact.” The higher resolution recording revealed this to be, “I wasn’t the one who stabbed him, Lisa, and I know that for a fact.” No statements of confession were found.

The two statements of denial were isolated and processed for additional clarity. It should be noted that these statements can be heard clearly without any processing, simply by increasing the volume in those sections of the recording.

***911 Recording:***

**16 bit/44.1KHz transfer:**

The original recording contained significantly less extraneous noise than the recording analyzed in 2000. This difference, of at least 3 decibels, represents a reduction of approximately half the extraneous noise. The amplitude (volume) of the recorded dialogue remained the same. However, because the original recording contains less noise, the signal (dialogue) can be heard more clearly. Again, The fact that there is so much more noise on the 2000 tape indicates that it is a second or third (or even higher) generation copy of the original.

**24 bit/48KHz transfer:**

This higher resolution transfer resulted in significantly increased dialogue clarity and significant new information.

At 5:37.0, an unidentified male states that he “cannot breathe.” Mr. Perry, the caller to 911, states at 5:39.9, “He’s complaining that he can’t breathe.” This indicates that the previous speaker was Vilmar Cabaccang, the victim. This allows us to identify the sonic characteristics (timbre) of the voice of Mr. Cabaccang and to identify him as the speaker at other points during the 911 call. This is a very simple process, not unlike identifying the sound of an instrument playing in an orchestra. Mr. Cabaccang’s voice is very distinctive among the audible voices on the recording. It is in the mid-baritone range, somewhat hoarse and lower pitched with few higher frequencies. No other speaker on this recording had these speech characteristics.

Additional clarification of the findings in 2000:

1. The name James Burkhardt is mentioned at 5:06.8. I believe the speaker to be Vilmar Cabaccang. At 5:08.5 an unidentified females says “Save your breath.” This is an additional indication that the male speaker is Mr. Cabaccang.
2. The statement, “Why didn’t the alarm go off. Turned it on a long time ago,” is more clearly audible in the original recording. This is at 5:32.3 and is followed by the same speaker saying “Cannot breathe.” This is followed at 5:39.3 by Mr. Perry indicating the previous male speaker as the victim, Vilmar Cabaccang.

3. The utterances by an unidentified male, “Back up. Get back. Drop the knife,” still exist at 1:55.3.

4. The above is followed by “Don’t panic,” at 2:00.3 by an unidentified male speaker. In the 2000 transcript this was marked as indistinguishable.

Significant new information:

1. At 5:19.4 a male speaker can be heard saying “Tell her we were robbed by Chris Diaz.” I believe this male speaker to be Vilmar Cabaccang.
2. At 1:37.2 the name Chris is mentioned. The speaker of this name cannot be identified as male or female. The origin of this cannot be identified as emanating from the 911 control room, the environment of Mr. Perry or from outside at the scene of the altercation.
3. At 0:45.4 an unidentified male says, “You get help. This is serious.” This male voice is in the tenor range. Neither the speaker nor the person to whom the statement is directed can be identified from the recording.
4. At 1:27.0 an unidentified male says “You lose today.”
5. At 1:47.3 an unidentified male says “Drop him.”

#### **Overview of Significant Audio Information, in Sequence:**

**Table 1: Significant Utterances**

0:45.4	UNIDENTIFIED MALE:	You get help. This is serious.
1:27.0	UNIDENTIFIED MALE:	You lose today.
1:37.2	UNIDENTIFIED SPEAKER:	Chris.
1:47.3	UNIDENTIFIED MALE:	Drop him.
1:55.3	UNIDENTIFIED MALE:	Back up. Get back. Drop the knife.
1:58.6	UNIDENTIFIED FEMALE:	(Crying).
2:00.3	UNIDENTIFIED MALE:	Don’t panic.
2:01.0	UNIDENTIFIED FEMALE:	(Crying).

**Table 2: Utterances Believed to be Attributable to Mr. Cabaccang**

3:23.8	UNIDENTIFIED MALE:	It was really tough. I didn't mean it. He's really dark inside.
5:06.8	UNIDENTIFIED MALE:	James Burkhardt just walked off.
5:08.8	UNIDENTIFIED MALE:	Get him.
5:19.4	UNIDENTIFIED MALE:	Tell her we were robbed by Chris Diaz.
5:32.3	UNIDENTIFIED MALE:	Why didn't the alarm go off. Turned it on a long time ago.
5:37.0	UNIDENTIFIED MALE:	Cannot breathe.

**Table 3: Basis for Identification of Vilmar Cabaccang's Voice**

5:39.3	MR. PERRY:	He's complaining that he can't breathe.
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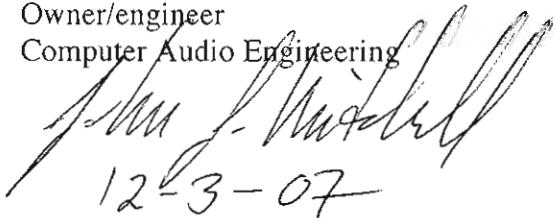
**Closing statement:**

Enhancement processing of the full recordings was not done, but isolated segments of the significant audio were processed for additional clarity. Expansion files were made to help the hearing process. An expansion file slows the playback of a digital audio source and corrects for change of pitch. By increasing the duration of the sample, the individual words become more distinct and the increased space between words reduces temporal masking. In other words, it allows the brain to process and interpret the sound better. This procedure is a standard technique used by speech and hearing scientists worldwide. It does not change the content of the dialogue.

Additional new dialogue was discovered but is not as significant to the case as that noted above. A new transcript of the 911 recording was prepared and contains all of the findings from that recording. The original recording transferred at 24 bit/48 KHz was used as the source for the transcription, and for the timings which were added to the transcript.

The Kimmey-Christian and 911 transcripts prepared by a court reporter in 2000 are still significant because they reflect that reporters ability to hear some of the significant information despite being at the disadvantage of having to use copies of the recordings that had less resolution than the 24 bit/48 KHz transfers of the originals used for this examination.

John J. Mitchell  
Owner/engineer  
Computer Audio Engineering



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